

Element	Concentration (%)	Atomic Weight	Valence	Electron Configuration	Crystal Structure	Phase Transition Temp. (°C)	Thermal Expansion Coeff. (10 ⁻⁶ /°C)	Thermal Conductivity (W/m·K)	Electrical Resistivity (μΩ·cm)	Thermal Stability	Notes
Al	99.995	26.98	3	[Ne] 3s ² 3p ¹	FCC	933	23.6	204	0.028	Stable	Lightest metal
Fe	99.99	55.85	2	[Ar] 3d ⁶ 4s ²	BCC	912	11.8	80	0.10	Stable	Most abundant metal
Cu	99.999	63.55	2	[Ar] 3d ¹⁰ 4s ¹	FCC	1085	16.7	401	0.017	Stable	High conductivity
Ag	99.9999	107.87	1	[Kr] 4d ¹⁰ 5s ¹	FCC	962	19.3	429	0.016	Stable	High conductivity
Au	99.99999	196.97	1	[Xe] 4f ¹⁴ 5d ¹⁰ 6s ¹	FCC	1063	18.8	318	0.022	Stable	High conductivity
Pt	99.999999	195.08	2	[Xe] 4f ¹⁴ 5d ⁹ 6s ¹	FCC	1768	13.3	71.6	0.10	Stable	High conductivity
Ir	99.9999999	223.03	3	[Xe] 4f ¹⁴ 5d ⁷ 6s ²	FCC	2446	11.5	54.7	0.15	Stable	High conductivity
Os	99.99999999	225.03	4	[Xe] 4f ¹⁴ 5d ⁶ 6s ²	FCC	3054	10.2	49.4	0.20	Stable	High conductivity
W	99.999999999	183.85	6	[Xe] 4f ¹⁴ 5d ⁴ 6s ²	BCC	3422	4.5	173	0.35	Stable	High conductivity
Mo	99.9999999999	95.94	6	[Xe] 4f ¹⁴ 5d ⁵ 6s ¹	BCC	2623	5.4	138	0.40	Stable	High conductivity
Ni	99.99999999999	58.71	2	[Ar] 3d ⁸ 4s ²	FCC	1455	13.4	91.6	0.07	Stable	High conductivity
Co	99.999999999999	58.93	2	[Ar] 3d ⁷ 4s ²	FCC	1495	13.1	87.0	0.08	Stable	High conductivity
Cr	99.9999999999999	51.99	2	[Ar] 3d ⁵ 4s ¹	BCC	1907	11.9	93.8	0.12	Stable	High conductivity
Mn	99.99999999999999	54.94	2	[Ar] 3d ⁵ 4s ²	BCC	1193	16.7	78.0	0.15	Stable	High conductivity
V	99.999999999999999	50.94	2	[Ar] 3d ³ 4s ²	BCC	1910	15.1	60.6	0.20	Stable	High conductivity
Ti	99.9999999999999999	47.88	2	[Ar] 3d ² 4s ²	HCP	883	8.6	21.9	0.25	Stable	High conductivity
Zr	99.99999999999999999	91.22	2	[Kr] 4d ² 5s ²	HCP	856	10.4	24.0	0.30	Stable	High conductivity
Hf	99.999999999999999999	178.49	2	[Xe] 4f ¹⁴ 5d ² 6s ²	HCP	858	10.4	24.0	0.30	Stable	High conductivity
La	99.9999999999999999999	138.91	3	[Xe] 5d ¹ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Ce	99.99999999999999999999	140.12	3	[Xe] 4f ¹ 5d ¹ 6s ²	FCC	795	16.7	78.0	0.15	Stable	High conductivity
Pr	99.999999999999999999999	140.91	3	[Xe] 4f ² 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Nd	99.9999999999999999999999	144.24	3	[Xe] 4f ³ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Pm	99.99999999999999999999999	144.91	3	[Xe] 4f ⁴ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Sm	99.999999999999999999999999	150.36	3	[Xe] 4f ⁵ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Eu	99.9999999999999999999999999	151.96	3	[Xe] 4f ⁶ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Gd	99.99999999999999999999999999	157.25	3	[Xe] 4f ⁷ 6s ²	FCC	912	11.8	80.0	0.10	Stable	High conductivity
Tb	99.999999999999999999999999999	158.93	3	[Xe] 4f ⁸ 6s ²	FCC						

As a below-named inventor, I hereby declare that:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

The specification of which
(check one)

_____ was filed on _____ as _____

and was amended on _____ (if applicable)

I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

Prior Foreign Application(s)			Priority Claimed	
<u>Number</u>	<u>Country</u>	<u>Filing Date</u>	<u>Yes</u>	<u>No</u>
P2000-123134	Japan	April 24, 2000	X	

Declaration and Power of Attorney

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I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>Application Serial No.</u>	<u>Filing Date</u>	<u>Status</u>
_____	_____	_____
_____	_____	_____

And I hereby appoint Jay H. Maioli, Reg. No. 27,213; Donald S. Dowden, Reg. No. 20,701; William E. Pelton, Reg. No. 25,702; Peter J. Phillips, Reg. No. 29,691; Gerald W. Griffin, Reg. No. 18,886; Ivan S. Kavrukov, Reg. No. 25,161; Christopher C. Dunham, Reg. No. 22,031; Norman H. Zivin, Reg. No. 25,385; John P. White, Reg. No. 28,678; and Robert D. Katz, Reg. No. 30,141; and each and all of them, all c/o Cooper & Dunham, 1185 Avenue of the Americas, New York, NY 10036 (Tel. (212) 278-0400), my attorneys, each with full power of substitution and revocation, to receive the patent, to transact all business in the Patent and Trademark Office connected therewith and to file any International Applications which are based thereon under the provisions of the Patent Cooperation Treaty.

Please address all communications, and direct all telephone calls, regarding this application to

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or

First joint inventor Shigeru Sugaya

Inventor's signature _____

Citizenship Japanese Date of Signature _____

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